CLAIMS

1.   A component mounting apparatus for picking up electronic components supplied from a component supply section by suction nozzles attached to a mounting head and mounting the electronic components on a printed circuit board, said apparatus comprising:

a control section for containing information on the components to be mounted and moving, based on said information, at least one of the positions of the suction nozzles, the mounting head and the printed circuit board, so that the components to be mounted are mounted in ascending order of height.

2.   A component mounting apparatus, comprising:

a component supply section for supplying electronic components;

a mounting head having suction nozzles for picking up the electronic components from said component supply section and mounting the electronic components on a printed circuit board;

a component mounting section for positioning and fixing said printed circuit board;

a control section for controlling operations of said suction nozzles, the mounting head and the component mounting section; and

a data section containing information on the components to be mounted,

wherein the positions of the suction nozzles, the mounting head and the printed circuit board are driven and controlled so that the components are mounted in ascending order of height based on height data on the components to be mounted, said height data being supplied from said data section.

3. A component mounting apparatus, comprising:

a component supply section that supplies electronic components;

a mounting head having a plurality of suction nozzles placed in a circular form for picking up the electronic components from said component supply section and mounting the electronic components on a printed circuit board;

a component mounting section for positioning and fixing said printed circuit board;

a control section for controlling vertical movements of said suction nozzles, intermittent rotations of the mounting head and horizontal movements of the component mounting section; and

a data section containing information on the components to be mounted,

wherein the movements of the suction nozzles, the mounting head and the printed circuit board are driven and controlled so that the components are mounted in ascending order of height based on height data on the components to be mounted, said height data being supplied from said data section.

4.   A component mounting apparatus, comprising:

a component supply section for supplying electronic components;

a mounting head having suction nozzles for picking up the electronic components from said component supply section and mounting the electronic components on a printed circuit board;

a component mounting section for positioning and fixing said printed circuit board;

a control section for controlling vertical movements of said suction nozzles and horizontal movements of the mounting head; and

a data section containing information on the components to be mounted,

wherein the movements of the suction nozzles and the mounting head are driven and controlled so that the components are mounted in ascending order of height based on height data on the components to be mounted, said height data being supplied from said data section.

5.   The component mounting apparatus according to claim 3, wherein the control section controls horizontal movements of the component mounting section and drives and controls the movements of the suction nozzles, the mounting head and the component mounting section so that the components are mounted in ascending order of height based on the height data on the

components to be mounted, said data being supplied from the data section.

6. A component mounting method for picking up components supplied from a component supply section by suction nozzles attached to a mounting head and mounting the components on a printed circuit board, comprising:

driving the positions of the suction nozzles, the mounting head and the printed circuit board so that the components are mounted on the printed circuit board in ascending order of height based on information on the components to be mounted, said information having been provided inside beforehand.

7. The component mounting method according to claim 6, wherein the target components to be mounted whose distance from other components is narrower than a predetermined value are judged to belong to a same group and the components are mounted in ascending order of height within the group.

8. The component mounting method according to claim 6, further comprising:

loading data on the shape, size and mounting positions of the components to be mounted and calculating, based on said data, a distance between the mounted components;

classifying the components whose calculated inter-component distance is narrower than a predetermined value into one group;

forming another group for those components whose calculated inter-component distance is wider than the predetermined value; and

deciding the order of mounting the components in said one group so that the components which are lower are mounted first.

9. The component mounting method according to claim 6, further comprising:

classifying the components into a plurality of component groups according to the mounting positions of the components and then deciding the order of mounting the components;

loading data on the shapes, sizes and mounting positions of said components to be mounted;

calculating distances between the components to be mounted based on the loaded data;

rearranging those components whose distance from a predetermined component is narrower than a predetermined value so that the components having a narrow inter-component distance are arranged in ascending order of height;

checking whether all the components have been completed with the above operation; and

mounting the components according to said rearranged order.

10. The component mounting method according to claim 8 or claim 9, further comprising:

checking whether there are any lower components that should be mounted first when the distance of the components from neighboring components is narrower than a predetermined value;

when there are components to be mounted, checking whether the mounting of the components that should be mounted first has been completed; and

mounting the components on the printed circuit board.